WHAT IS CLAIMED IS:

1. A method of making an array of materials, said method comprising:

(a) delivering a first component of a first material and a first component of a second material to first and second regions on a substrate;

(b) delivering a second component of said first material and a second component of said second material to said first and second regions on said substrate; and

(c) simultaneously reacting said components to form at least two materials.

2. The method as recited in claim 1 wherein said materials are covalent network solids.

3. The method as recited in claim 1 wherein said materials are ionic solids.

4. The method as recited in claim 1 wherein said materials are molecular solids.

5. The method as recited in claim 1 wherein said materials are inorganic materials.

6. The method as recited in claim 5 wherein said inorganic materials are intermetallic materials.

7. The method as recited in claim 5 wherein said inorganic materials are metal alloys.

8. The method as recited in claim 5 wherein said inorganic materials are ceramic materials.

9. The method as recited in claim 1 wherein said materials are organometallic materials.

10. The method as recited in claim 1 wherein said materials are composite materials.

11. The method as recited in claim 1 wherein said materials are non-biological organic polymers.

12. The method as recited in claim 1 wherein said first component of said first material and said second component of said first material are simultaneously delivered to said first region.

13. The method as recited in claim 1 wherein said first component of said first material and said first component of said second material are simultaneously delivered to said first region and said second region, respectively.

14. The method as recited in claim 1 wherein said first component of said first material and said first component of said second material are the same, but are offered in different concentrations.

15. The method as recited in claim 1 wherein said second component of said first material and said second component of said second material are the same, but are offered in different concentrations.

16. The method as recited in claim 1 wherein said first component of said first material is delivered to said first region in a gradient of stoichiometries.

17. The method as recited in claim 1 wherein said first component of said first material and said first component of said second material are the same, but are offered to said first and second regions on said substrate in a gradient of stoichiometries.

18. The method as recited in claim 1 wherein the components of said materials are delivered to said first and second regions on said substrate from a pipette.

19. The method as recited in claim 1 wherein the components of said materials are delivered to said first and second regions on said substrate from a pulse pressure ink-jet dispenser.

20. The method as recited in claim 1 wherein the components of said materials are delivered to said first and second regions on said substrate from bubble jet ink-jet dispenser.

21. The method as recited in claim 1 wherein the components of said materials are delivered to said first and second regions on said substrate from a slit jet ink-jet dispenser.

22. The method as recited in claim 1 wherein said steps of delivering said components each comprises the following steps:

(i) identifying a reference point on said substrate;

(ii) moving a dispenser of said component a fixed distance and direction from said reference point such that said dispenser is positioned approximately above said first region on said substrate;

(iii) delivering said component to said first region; and

(iv) repeating steps (ii) and (iii) for each remaining component for each remaining region.

23. The method as recited in claim 1 wherein said step of delivering said first component of said first material to said first region on said substrate comprises the steps of:

(i) placing a mask adjacent to said substrate, said mask permitting said first component of said first material to be delivered to said first region on said substrate, but not to said second region on said substrate;

(ii) delivering said first component of said first material to said first region on said substrate; and

(iii) removing said mask.

24. The method as recited in claim **1** wherein said step of delivering said first component of said first material to said first region on said substrate comprises the steps of:

(i) placing a mask adjacent to said substrate, said mask permitting said first component of said first material to be delivered to said first region on said substrate, but not to said second region on said substrate;

(ii) depositing a thin-film of said first component of said first material on said first region on said substrate; and

(iii) removing said mask.

25. The method as recited in claim **1** wherein said step of delivering said first component of said first material to said first region on said substrate comprises the steps of:

(i) placing a mask adjacent to said substrate, said mask permitting said first component of said first material to be delivered to said first region on said substrate, but not to said second region on said substrate;

(ii) spraying said first component of said first material onto said first region on said substrate; and

(iii) removing said mask.

26. The method as recited in claim 1 wherein said step of delivering said first component of said first material to said first region on said substrate comprises the steps of:

(i) depositing a photoresist on said substrate;

(ii) selectively exposing said photoresist on said substrate;

(iii) selectively removing said photoresist from said substrate to expose said first region;

(iv) delivering said first component of said first material to said first region on said substrate; and

(v) removing remaining photoresist from said substrate.

27. The method as recited in claim 1 wherein said step of delivering said first component of said first material to said first region on said substrate comprises the steps of:

(i) delivering said first component of said first material to first and second regions on said substrate;

(ii) depositing a photoresist on said substrate;

(iii) selectively exposing said photoresist on said substrate;

(iv) selectively removing said photoresist from said second region on said substrate, thereby exposing said first component of said first material;

(v) etching off the exposed first component of said first material; and

(vi) removing remaining photoresist from said substrate.

28. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 25 cm^2.

29. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 10 cm^2.

30. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 5 cm^2.

31. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 1 cm^2.

32. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 1 mm^2.

33. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 10,000 μm^2.

34. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 1,000 μm^2.

35. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 100 μm^2.

36. The method as recited in claim 1 wherein each of said materials is synthesized in an area of less than 1 μm^2.

37. The method as recited in claim 1 wherein at least 10 different materials are synthesized on said substrate.

38. The method as recited in claim 1 wherein at least 100 different materials are synthesized on said substrate.

39. The method as recited in claim 1 wherein at least 100 different materials are synthesized on said substrate.

40. The method as recited in claim 1 wherein at least 10^6 different materials are synthesized on said substrate.

41. The method as recited in claim 1 wherein at least 100 different materials are synthesized, and each different material is contained within an area of about 1 mm^2 or less.

42. The method as recited in claim 1 further comprising the step of screening said array of materials for a useful property.

43. The method as recited in claim 42 wherein said useful property is an electrical property.

44. The method as recited in claim 42 wherein said useful property is a thermal property.

45. The method as recited in claim 42 wherein said useful property is a mechanical property.

46. The method as recited in claim 42 wherein said useful property is a morphological property.

47. The method as recited in claim 42 wherein said useful property is an optical property.

48. The method as recited in claim 42 wherein said useful property is a magnetic property.

49. The method as recited in claim 42 wherein said useful property is a chemical property.

50. The method as recited in claim 42 wherein said array of materials is screened in parallel.

51. The method as recited in claim 42 wherein said array of materials is screened sequentially.

52. An array of more than 10 different inorganic materials on a substrate at known locations thereon.

53. The array as recited in claim 52 wherein more than 100 different inorganic materials on a substrate at known locations thereon.

54. The array as recited in claim 52 wherein more than 10^3 different inorganic materials on a substrate at known locations thereon.

55. The array as recited in claim **52** wherein more than 10^6 different inorganic materials on a substrate at known locations thereon.

56. The array as recited in claim **52** wherein said inorganic materials are intermetallic materials.

57. The array as recited in claim **52** wherein said inorganic materials are metal alloys.

58. The array as recited in claim **52** wherein said inorganic materials are ceramic materials.

59. The array as recited in claim **52** wherein said inorganic materials are inorganic-organic composite materials.

60. A method of making at least two different arrays of materials, said method comprising:

(a) delivering a first component of a first material to a first region on a first substrate and delivering said first component of said first material to a first region on a second substrate;

(b) delivering a first component of a second material to a second region on said first substrate and delivering said first component of said second material to a second region on said second substrate;

(c) delivering a second component of said first material to said first region on said first substrate and delivering said second component of said first material to said first region on said second substrate;

(d) delivering a second component of said second material to said second region on said first substrate and delivering said second component of said second material to said second region on said second substrate; and

(e) reacting said components on said first substrate under a first set of reaction conditions and said components on said second substrate

under a second set of reaction conditions to form at least two different arrays of at least two materials.

61. The method as recited in claim **60** wherein said materials are covalent network solids.

62. The method as recited in claim **60** wherein said materials are ionic solids

63. The method as recited in claim **60** wherein said materials are molecular solids.

64. The method as recited in claim **60** wherein said materials are inorganic materials.

65. The method as recited in claim **64** wherein said materials are intermetallic materials.

66. The method as recited in claim **64** wherein said inorganic materials are metal alloys.

67. The method as recited in claim **64** wherein said inorganic materials are ceramic materials.

68. The method as recited in claim **60** wherein said materials are organometallic materials.

69. The method as recited in claim **60** wherein said materials are composite materials.

70. The method as recited in claim **60** wherein said materials are non-biological organic polymers.

71. The method as recited in claim **60** wherein said first set of reaction conditions differs from said second set of reaction conditions in terms of the temperature at which the reactions are carried out.

72. The method as recited in claim **60** wherein said first set of reaction conditions differs from said second set of reaction conditions in terms of the pressure at which the reactions are carried out.

73. The method as recited in claim **60** wherein said first set of reaction conditions differs from said second set of reaction conditions in terms of the reaction times at which the reactions are carried out.

74. The method as recited in claim **60** wherein said first set of reaction conditions differs from said second set of reaction conditions in terms of the atmosphere in which the reactions are carried out.

75. The method as recited in claim **60** wherein said first component of said first material and said first component of said second material are the same, but are offered in different concentrations.

76. A material having a useful property prepared by a process comprising the steps of:

(a) forming an array of different materials on a single substrate;

(b) screening said array for a material having said useful property; and

(c) making additional amounts of said material having said useful property.

77. The material as recited in claim **76** wherein step (a) of said process further comprises the steps of:

(i) delivering a first component of a first material and a first component of a second material to first and second regions on a substrate;

(ii) delivering a second component of said first material and a second component of said second material to first and second regions on said substrate; and

(iii) simultaneously reacting said components to form said array of at least two different materials.

78. The material as recited in claim **77** wherein said first component of said first material and said first component of said second material are the same, but are offered in different concentrations.

79. The material as recited in claim **76** wherein said material is a covalent network solid.

80. The material as recited in claim **76** wherein said material is an ionic solids.

81. The material as recited in claim **76** wherein said material is a molecular solid.

82. The material as recited in claim **76** wherein said material is an inorganic material.

83. The method as recited in claim **82** wherein said inorganic material is an intermetallic material.

84. The method as recited in claim **82** wherein said inorganic material is a metal alloy.

85. The method as recited in claim **82** wherein said inorganic material is a ceramic material.

86. The method as recited in claim **76** wherein said material is an organometallic material.

87. The method as recited in claim **76** wherein said material is a composite material.

88. The method as recited in claim 76 wherein said material is a non-biological organic polymer.

89. The method as recited in claim 76 wherein said material is a high temperature superconductor.

90. The method as recited in claim 76 wherein said material is a magnetoresistive material.

91. The method as recited in claim 76 wherein said material is a zeolite.

92. The method as recited in claim 76 wherein said material is a phosphor.

93. The method as recited in claim 76 wherein said material is a conducting polymer.